# Clarion Service Manual

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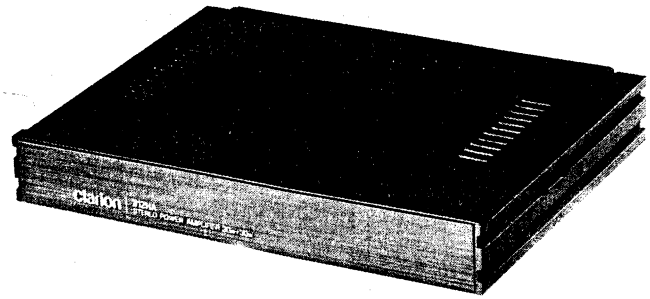


## 30W+30W Power Amp.
## Model 312HA (EE-711A)

## SPECIFICATIONS:

| | |
|---|---|
| Maximum power output: | 30W+30W |
| Load impedance: | 4Ω×2 |
| Power supply voltage: | DC 14.4V<br>Negative ground |
| Current consumption: | 5A or less |
| Dimensions: | Width 178mm<br>Height 25mm<br>Depth 135mm |
| Weight: | 770g |

## COMPONENTS:

- **EE-711A-51**

| | | |
|---|---|---|
| Main unit | | 1 |
| Mounting bracket | 300-5946-02 | 1 |
| Mounting bracket | 300-5946-03 | 1 |
| A-lead | 850-2388-00 | 1 |
| Parts bag | 921-8293-00 | 1 |
| Tap-screw (M5x16) | 700-5016-80 | 2 |
| Screw | 716-0673-00 | 4 |
| Plate nut | 725-0216-00 | 2 |

## FEATURES:

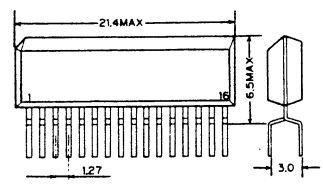
- Maximum output 30W+30W
- BTL circuit
- Protection circuit

## EXPLANATION OF IC's:

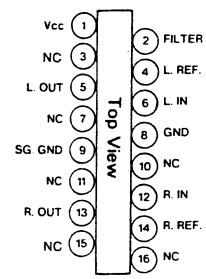
| Refer to description in IC service manual VOL 2. | | | |
|---|---|---|---|
| TA7250BP | 051-0748-00 | 23W BTL Power Amp | P.33 |

■ TA7424P 051-0744-01
TA7424AP 051-0744-02 Ground Isolator

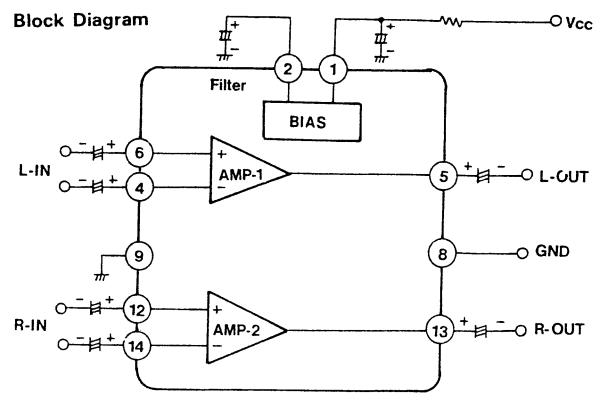
**Outward Form**




**Terminal Connection**




**Block Diagram**




③ : OPEN ⑦⑩⑪⑮⑯ : CONNECT TO OPEN OR GND

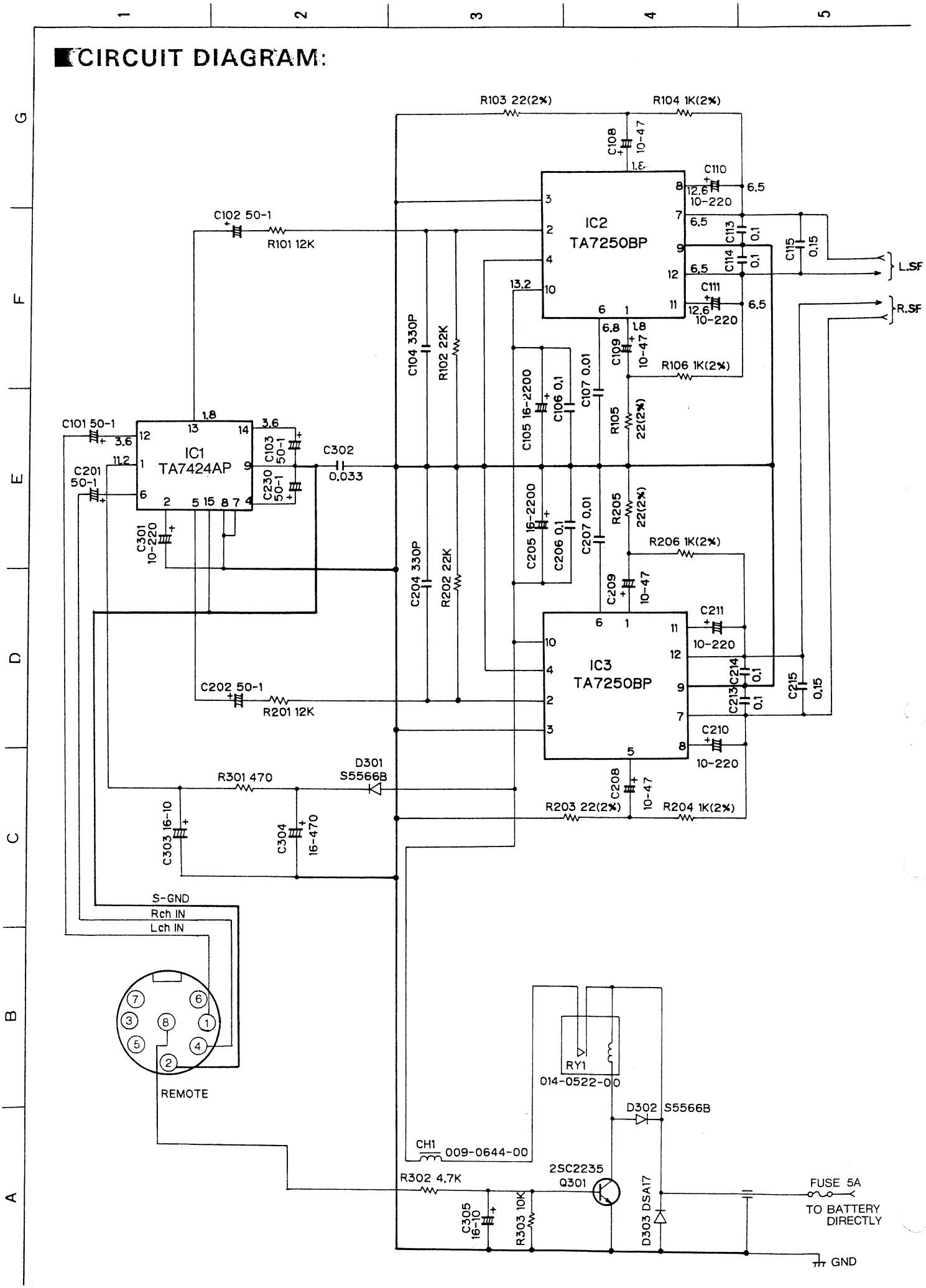
**Maximum Ratings**

| | | |
|---|---|---|
| Supply voltage | $V_{CC}$ | 18V |
| Power dissipation | $P_D$ | 750mW |

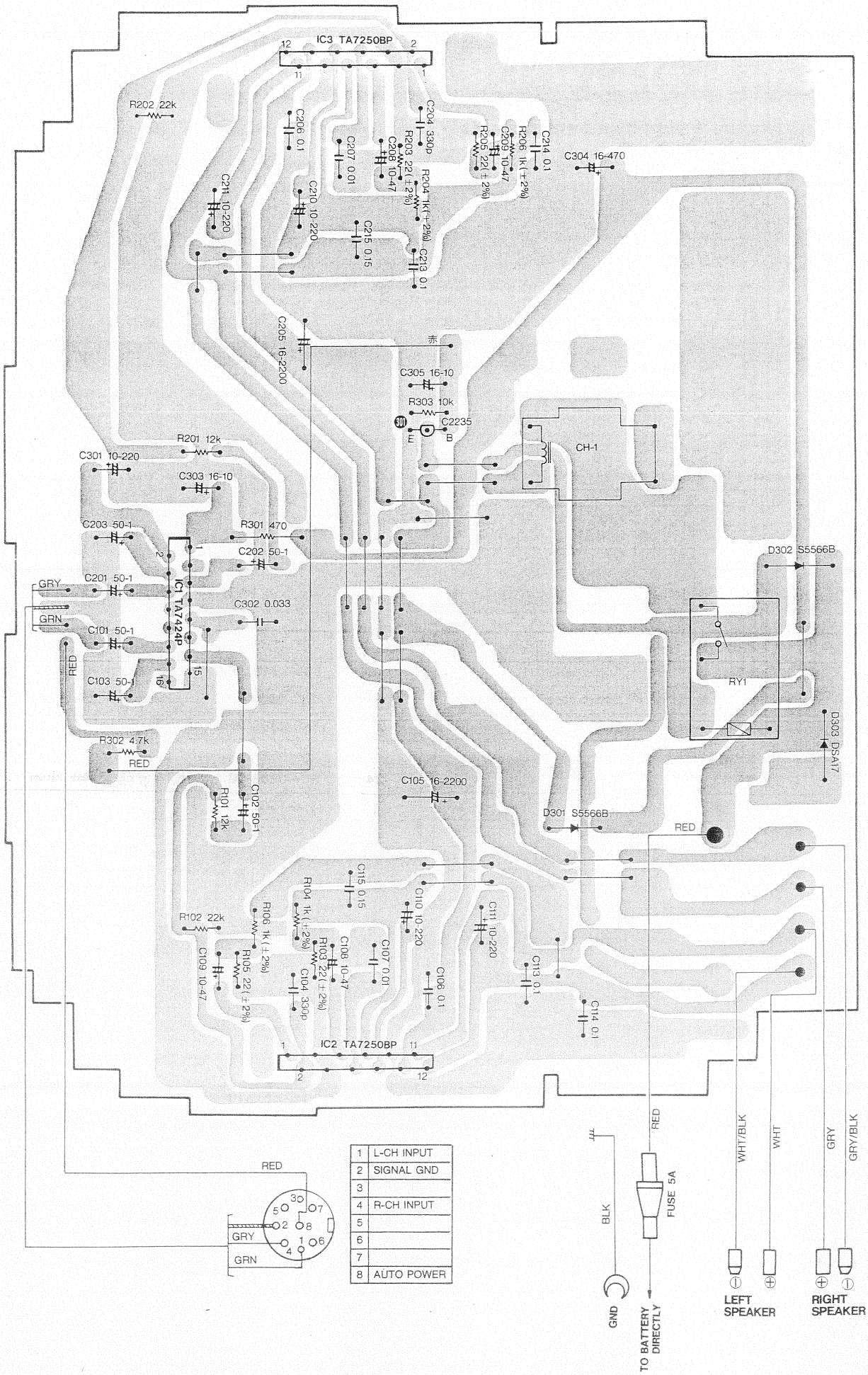
**Electrical Characteristics** ($V_{CC}$=13.2V, $R_L$=15kΩ, f=1kHz, Ta=25°C)

| Item | Symbol | Condition | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Current drain | $I_{CCQ}$ | $V_{IN}$=0, Mute OFF | – | 3 | 5 | mA |
| Voltage gain | $G_V$ | Vout=−10dBm | −2 | 0 | +2 | dB |
| Maximum output voltage | $V_{OM}$ | $V_{CC}$=8V, THD=0.1% | – | 2 | – | dBm |
| Total harmonic distortion | THD | Vout=100mVrms, BW=400Hz−80kHz | – | 0.01 | 0.03 | % |
| Crosstalk | CT | $V_{IN}$=−10dBm | – | 80 | – | dB |
| Input impedance | Zi | Vout=−10dBm | – | 70 | – | kΩ |
| Output impedance | Zo | Vout=−20dBm | – | 0.45 | – | kΩ |
| Common mode rejection ratio | CMRR | $V_{IN}$=−10dBm | 41 | 50 | – | dB |

# CIRCUIT DIAGRAM:



# PRINTED WIRING BOARD:

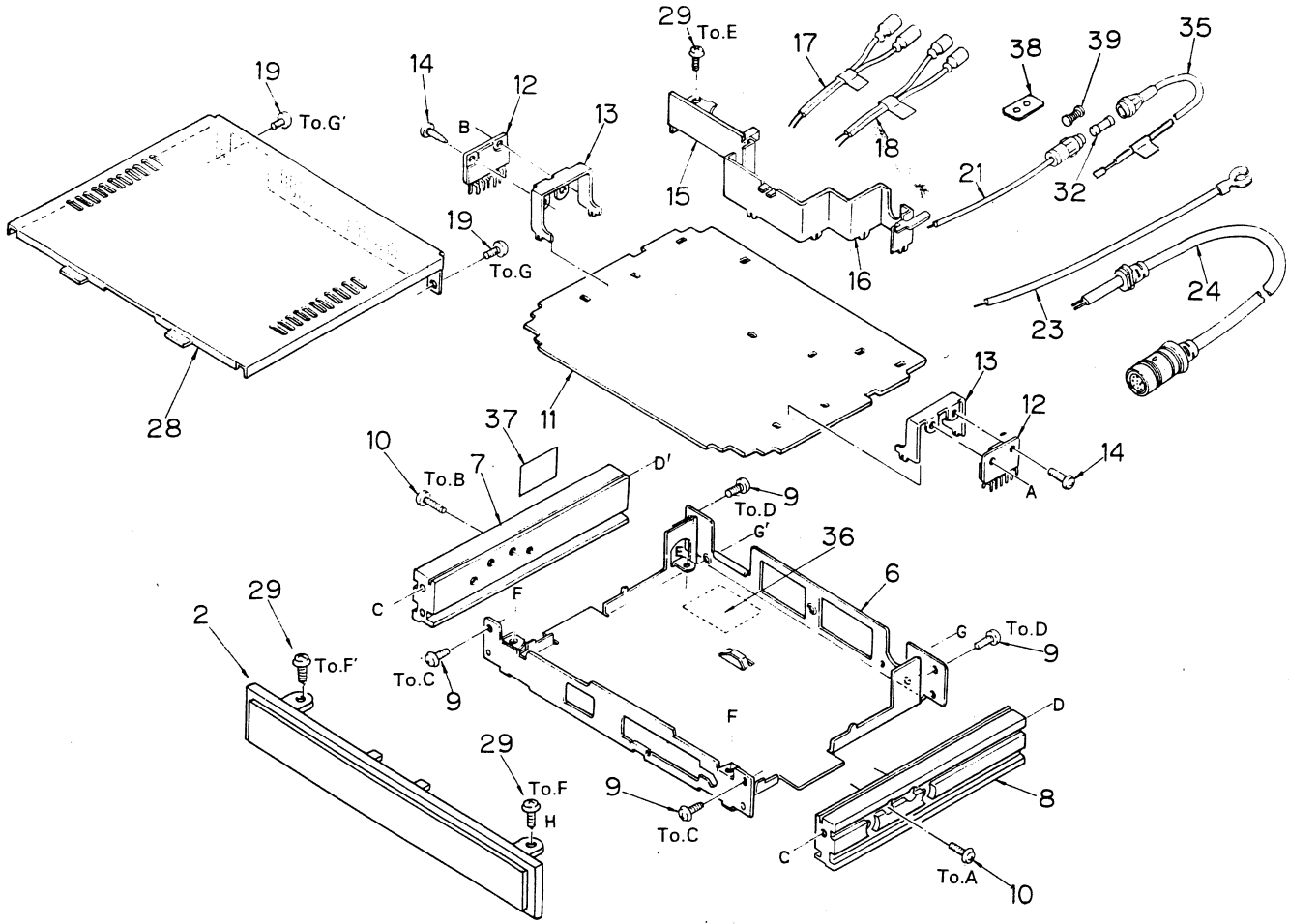



| | |
|---|---|
| 1 | L-CH INPUT |
| 2 | SIGNAL GND |
| 3 | |
| 4 | R-CH INPUT |
| 5 | |
| 6 | |
| 7 | |
| 8 | AUTO POWER |



312HA

# ■EXPLODED VIEW • PARTS LIST: ◎Main section




| REF.NO. | PART NO. | DESCRIPTION | Q'TY |
|---|---|---|---|
| 2 | 370-3999-03 | Escutcheon | 1 |
| 6 | 311-1202-03 | Lower case | 1 |
| 7 | 313-1240-04 | Heat sink (L) | 1 |
| 8 | 313-1240-05 | Heat sink (R) | 1 |
| 9 | 716-0685-00 | Screw | 4 |
| 10 | 714-2610-89 | Machine screw (M2.6x10) | 2 |
| 11 | 099-7933-00 | P.W.B | 1 |
| 12 | 051-0748-00 | Power IC | 2 |
| 13 | 330-8286-00 | IC holder | 2 |
| 14 | 714-2606-19 | Machine screw (M2.6x6) | 2 |
| 15 | 944-0711-01 | Filter ass'y | 1 |
| 16 | 330-8285-00 | Pressed part | 1 |
| 17 | 851-2546-05 | SP lead (L) | 1 |

| REF.NO. | PART NO. | DESCRIPTION | Q'TY |
|---|---|---|---|
| 18 | 851-2546-06 | SP lead (R) | 1 |
| 19 | 731-3006-89 | Tap tight (M3x6) | 2 |
| 21 | 850-2390-00 | A-lead | 1 |
| 23 | 840-0468-00 | Bonding wire | 1 |
| 24 | 854-0303-00 | Extension cord | 1 |
| 28 | 310-1239-06 | Upper case | 1 |
| 29 | 731-3006-80 | Tap tight (M3x6) | 3 |
| 32 | 120-0050-03 | Fuse (5A) | 1 |
| 35 | 850-2392-01 | A-lead | 1 |
| 36 | 286-6939-00 | Set plate | 1 |
| 37 | 285-1257-00 | Guide label | 1 |
| 38 | 285-0838-01 | Guide label | 1 |
| 39 | 010-1610-02 | Coil | 1 |

# ■PARTS LIST: ◎Electrical section

| REF.NO. | PART NO. | DESCRIPTION | Q'TY |
|---|---|---|---|
| D303 | 001-0334-00 | Diode (DSA17) | 1 |
| D301,302 | 001-0360-00 | Diode (S5566B) | 2 |
| CH1 | 009-0644-00 | Choke | 1 |
| RY1 | 014-0522-00 | Relay (G6C-1117P) | 1 |
| IC1 | 051-0744-02 | IC (TA7424AP) | 1 |
| IC2,3 | 051-0748-00 | IC (TA7250BP) | 2 |
| Q301 | 102-2235-00 | Transistor (2SC2235OY) | 1 |
| R 104,106 204,206 | 111-1020-91 | Film resistor (1kΩ-G±2%) | 4 |
| R 103,105 203,205 | 111-2200-91 | Film resistor (22Ω-G±2%) | 4 |
| C104,204 | 160-3312-05 | Ceramic capacitor (330pF) HD | 2 |

| REF.NO. | PART NO. | DESCRIPTION | Q'TY |
|---|---|---|---|
| C107,207 | 173-1032-10 | Polyester capacitor (0.01μF) S | 2 |
| C 106,113,114 206,213,214 | 173-1042-10 | Polyester capacitor (0.1μF) S | 6 |
| C115,215 | 173-1542-10 | Polyester capacitor (0.15μF) S | 2 |
| C302 | 173-3332-10 | Polyester capacitor (0.033μF) S | 1 |
| C 101,102,103 201,202,203 | 179-1053-62 | Electrolytic capacitor (50V1μF) S | 6 |
| C303,305 | 179-1063-32 | Electrolytic capacitor (16V10μF) S | 2 |
| C 110,111,210 211,301 | 179-2273-22 | Electrolytic capacitor (10V220μF) S | 5 |
| C105,205 | 179-2283-31 | Electrolytic capacitor (16V2200μF) S | 2 |
| C 108,109 208,209 | 179-4763-22 | Electrolytic capacitor (10V47μF) S | 4 |
| C304 | 179-4773-33 | Electrolytic capacitor (16V470μF) S | 1 |

NOTE : OM (Oxidized Metal) HD (Higher Dielectric) SS (Super Small) LL (Low Leak)
S (Small) SC (Semi-Conductor) TC (Temperature-Compensating) USS (Ultra Super Small)



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